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William D. Dunbar* (wdunbar@simons-rock.edu), Bard College at Simon's Rock, 84 Alford Road, Great Barrington, MA 01230, and **Sarah J. Greenwald**, **Jill McGowan** and **Catherine Searle**. *Diameters of spherical 3-orbifolds*.

In joint work with S.J. Greenwald, J. McGowan, and C. Searle, we have calculated a lower bound for the diameter of any quotient space of the form S^3/G , where G is a closed subgroup of $O(4)$ acting nontransitively on the unit three-sphere S^3 . I will concentrate on the case when G is a finite group, so that the quotient has the structure of a 3-orbifold. Many such orbifolds are Seifert-fibered (more precisely, G leaves a Hopf fibration invariant), and when the fiber is short, the diameter is well-approximated by that of the base 2-orbifold. Indeed, that is one way to approach our lower bound of $\arccos(\tan(3\pi/10)/\sqrt{3})/2$. The remaining orbifolds were analyzed case-by-case, with emphasis of course on those which did not cover another orbifold (i.e., those for which G was maximal among finite subgroups). I will sketch our approach, give some illustrations, and pose a question which I believe is still open. (Received February 16, 2009)